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Influence of Animation on Pre-Nursery School Children Learning Outcome in Osun State

Chinedu I. Okeke[1], Olugbenga Timothy Ajadi[2]
[1,2] *University of Free State, Bloemfontein, South Africa*
Corresponding Author : ajagbesope@yah.co.uk

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ABSTRACT

The primary form of entertainment of children in the 20th century was telling stories, and many grandparents and parents managed to form bonds with the kids via this storytelling. However, animations have supplanted the custom of telling stories. Hence, this study investigated the types of animation resources available for teaching and influence of animation resources on learning outcome of pre-nursery school children in Osun State. The study's population comprised 7,393 teachers employed in private primary school across the 30 Local Government Areas and one Area Council of Osun State. The study sampled 180 respondents across the private primary schools across the three senatorial districts of the state. Questionnaire titled Animation and Pre-Nursery Children Learning Outcome Questionnaire (APNCLOQ) with reliability co-efficient of 0.93 was used to elicit responses from respondents. The study provided answers and tests for one research question and one hypothesis. The study found indigenous animations to be available while media and computer animations are not available in pre-nursery schools in Osun State. The study concluded that children should be exposed to, and guided to watch instructive animated cartoons rather than violent ones. Integrating indigenous animation into pre-nursery school programs is recommended for both educators and schools is recommended.

Key Word *Indigenous Animations, Media Animations, Computer Animations.*
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INTRODUCTION

All over the world, storytelling has always attracted pupils. Children frequently create fantasies in which they identify with fictional characters whose qualities appeal to them. The primary form of entertainment at the end of the day was storytelling, which allowed parents and grandparents to strengthen their bonds with their kids. It was used to establish social taboos and impart values centuries ago. In Nigerian villages, this was the norm before technology took control.

The development of technology has altered children's entertainment. Night storytelling has been replaced by animations, which promote social-emotional growth and education. According to Parlakyildiz et al. (2022) animation improves children's ability to solve problems and appreciate beauty while also making them have fun. Animation and other digital technologies have transformed pre-nursery education by making learning and teaching more enjoyable. It is thought that animated materials make complex ideas easier to understand.

Children fall in love with certain animated characters because they exhibit qualities like courage, compassion, or resolution that make them ideal role models. According to Akande (2023), animations are widely accessible via the internet, DVDs, streaming services, and television. Children may watch their favorites whenever they want. Thanks to this accessibility, which makes them happier.

In Osun State, Nigeria, a large number of pre-schoolers are exposed to a variety of cartoons. Some watch without parental supervision before school in the morning and after school in the evening. Regardless of their instructional value, they choose to watch TV animations. According to Sharma and Suri (2020), if left unchecked, animations can have a beneficial or detrimental impact on childrens' behavior. Benefits including improved self-control and observation, language development, creativity, respect for parents and elders, and health were mentioned by the authors. Aggression, violence, and learning distraction are examples of negatives impact. Parvin and Islam (2020), opined that children that watch animations learn a lot of important things that impact their language, behavior, education, and developement.

Children in Nigeria begin basic education around age six (Federal Republic of Nigeria, 2014). Nonetheless, as is typical with private providers, children ages six months to four years may attend pre-nursery. Without relaxation strategies, children in this age range can be difficult to manage. According to Jamal et al. (2019), since it might be challenging to capture children's attention during exchanges, teachers can employ animations. According to Federal Republic of Nigeria (2014), the objectives of instruction in pre-nursery schools should be to: ensure a seamless transition between the home and the school.; get the youngster ready for nursery school; give the kids proper attention, supervision, and protection during their parents' work hours.; instil moral, social, and ethical principles, among others.

Musa et al. (2015) informed that in pre-nursery schools, animation has transformed communication and evolved into an engaging digital tool that encourages children to study effectively. Using animation in preschool and

elementary schools fosters learning and gives children problem-solving abilities. Chernikova, et al. (2020) informed that, animation teaches moral, social, and ethical qualities in addition to motivating children. It encourages collaboration and teamwork through gamification, interactive features, and visual storytelling.

The term animation has been defined differently by different authours. Musa et al. (2015), informed that since 1995, the most prominent feature of technology-based learning has been animation. Yagil (2013), described it as activities involved in transforming motionless objects into moving pictures. Chinyere (2019), saw it as altering images to make them seem authentic. Alyssa (2025), defined it as movement produced by a sequence of images. Paulinus and Iniobang (2016), considered it as adding motion to puppets, sculptures, or sequential drawings. Anekwe and Opara (2021), described it as animated images created from computer-generated drawings. Asiedu (2022), viewed it as transforming hand-drawn or computer-generated images into animated movies, especially cartoons. In conclusion, animation helps children grasp abstract concepts and gives them life. It is a visualization tool used in teaching.

Adjeketa (2015), identified three main forms of animation (indigenous, media and computer animation) that can be used in pre-nursery schools. According to Jain and Verma (2021), originating throughout dynasties and eras, indigenous cartoons have thrived for generations in historical contexts. Gupta et al. (2021), noted that according to historical documents and oral traditions, indigenous cartoons were both a pastime and a necessity for childrens' everyday existence. This was the most widely used technique in the 20th century worldwide before computer animation took over. Chinyere (2019), described indigenous animation as toys, photos, drawings, and pictures created by hand using materials found in the area. By using toys made from locally sourced materials, children can learn. Amoo (2023), concluded that interactive animations supporting teaching and learning are crucial for pre-nursery education, promoting engagement, comprehension, and memory, thereby improving outcomes. George and Joseph (2024), found that in elementary schools in Uttar Pradesh, locally made animation promoted environmental awareness, enhanced instruction, and preserved cultural heritage. Da Silva (2024), reported that when incorporating indigenous knowledge, Portuguese primary schools used more traditional animations rather than ones powered by technology.

The second type of animation identified by Adjeketa (2015) is media animation. According to Bichi (2009, as cited in Obinna et al. 2021), devices that mimic both visual and aural representations are known as media animations.

Ayotola and Abiodun (2010), defined media animations as audio and visual productions made especially to support education. Apart from providing entertainment, media, especially television and movies, play an important role in children's education from an early age. Haruna and Lawal (2025), defined media animation as incorporating animated content like movies, GIFs, or moving pictures into more extensive multimedia presentations. Williams (1981, as cited in Adjeketa, 2015), concluded that media animation is a powerful instrument that shapes children's social behavior. Despite the dearth of culturally based animated films, other media computer networks, television, movies, videos, games, and radio are significant in day-to-day living. However, Oyero and Oyesomi (2014), noted that Nigerian television is dominated by foreign cartoons, which may have an impact on children' futures. Akerele and Afolabi (2012), found that Adeyemi College of Education does not use video animation for instruction.

Similarly, Akinoso (2018) concluded that Nigerian senior secondary students' weak mathematics performance was exacerbated by the lack of media animation. Asiedu (2022) study on the use of computer animations to improve the academic performance of senior high school pupils found non-availability of media animation in Winneba high school. On the other hand, Sahid and Akeredolu-Ale (2025), discovered that certain Lagos State institutions had more multimedia animation than other kinds.

The third type of animation identified by Adjeketa (2015), is computer animation, also called digital animation. Computer animation is the term for moving digitally created images, whereas computer graphics can be used for static visuals. Amoo (2023), defined it as creating digital effects and moving images with technology. Famaye et al. (2020), found in Abuja schools, computer animation is more accessible than indigenous animation. According to Aksoy (2012), it is used to increase students' interest and participation in science and technology lessons in the seventh grade. Dziedzic et al. (2015), stated that when it comes to increasing achievement, animation approaches are more approachable and effective than traditional instructional methods. Bulfin and North (2017), found the presence of computer cartoons in Australian youths' homes and schools guarantees active learning engagement.

Studies on animation has been extensively investigated as a means of improving academic performance. Results indicate that animations improve student performance at all levels. Studies by Asiedu (2022), Lawan (2024), Anekwe and Opara (2021), and Alex et al. (2022), revealed that learners can better comprehend difficult subjects with the use of dynamic audio-visual aids and animated images. Haruna and Lawal (2025), found that using animated

media resources improves the academic performance of biology students studying ecology in Kano State's institution of hgher learning. Etim et al. (2016), examined the relationship between Business Studies students' achievement and slow-motion instructional animation in Akwa Ibom State using a quasi-experimental design with 88 purposively selected students. The experimental group watched slow-motion animation, while the control group received explanatory instruction. The findings demonstrated that, in contrast to the explanatory approach, instructional slow-motion animation improved the academic performance of Junior Secondary School Class 3 Business Studies students.

Ojo (2022), investigated 80 students (40 males and 40 girls) from two private co-educational schools in Bwari Area Council, FCT in a quasi-experimental study to determine whether students who are taught through animation perform better than those who are taught through other recorded techniques. Two randomly selected and six purposefully selected schools had computer laboratories. The results demonstrated that animation is more successful than recorded educational approaches in improving students' performance and interest in mathematics.

Omer and Yuksel (2020), investigated how 83 kids between the ages of 48 and 60 months are affected by 3D cartoons in terms of their conceptual development and spatial perception. Results indicated a strong favorable impact of cartoons on pre-schoolers' conceptual development. Eker and Karadeniz (2014), examined classroom animations' effects on learning with 56 fourth-grade pupils in a quasi-experimental design. The effectiveness of animations in improving learning outcomes was demonstrated by the results, which showed that the experimental group's retention scores were higher than those of the control group. Sabitu and Khalid (2024), examined the impact of computer animation on the performance of primary school pupils in Oyo Metropolis through a quasi-experimental design. The results revealed no appreciable difference in academic performance between students in the control group and those in public schools who were taught using computer animation.

Traditional teaching methods that do not incorporate indigenous media and computer animation, as well as storytelling at home, are losing their effectiveness. Due to their short attention spans, pre-nursery children find it difficult to concentrate during traditional teaching, yet if left unsupervised, they can spend hours watching cartoons. Osun State's requirement for a strong academic foundation and the advancement of technology need that education change to meet the demands of the digital age. Hence, this study investigated the types of animation resources available for teaching and influence of

animation resources on learning outcome of pre-nursery school children in Osun State.

RESEARCH METHOD

The study adopted a descriptive survey design with a population of 7,393 (Open Education Data, 2023) teachers employed in private primary school across the 30 Local Government Areas and one Area Council of Osun State. A sample size of 180 teachers were selected from the study area using multistage sampling procedure. The first step was categorising all the private primary schools in Osun State according to the three senatorial districts. The second step was randomly selection of three local government each from each of the senatorial districts, making a total of nine local government selected altogether across the state. The third step was selection of 10 private primary schools purposively from each of the three local government area, making a total of 30 schools selected from each senatorial district. The purposive technique was adopted at this stage to select schools with at least two teachers at the pre-nursery section. School with less are not selected for this study. The fourth stage was the use of random sampling technique to select two teachers at the pre-nursery section from each of the ten schools selected from each of the local government selected. Altogether, 60 teachers are selected from 30 schools in each of the three senatorial districts.

Questionnaire titled Animation and Pre-Nursery Children Learning Outcome Questionnaire (APNCLOQ) with three sections was deployed for this study. Demographic data was gathered in the first section of the questionnaire, and answers about the availability and impact of pre-nursery school learning outcome animations were gathered in the second section. The third portion consists of a checklist with items that teachers should check off if they are available. Experts in the relevant fields performed the instrument's face and content validity, and the Cronbach internal consistency reliability approach was used to calculate the reliability coefficient, which came out to be 0.93. Simple percentage was used to answer the research question while Linear Regression was used to test the hypothesis at 0.05 level of significance.

RESULT AND DISCUSSION

The purpose of this results and discussion is to state the findings, make interpretations and/or opinions, dsicuss the findings, and make necessary recomendations.

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Results

Table 1.
Animation Resources for Pre-Nursery Children in Osun State
N=180

No	Items	Available	Not Available	Total	Remarks
1	Indigenous Animations:				
	Hand Drawn Pictures	158 (87.78%)	22 (12.22%)	180	Available
	Hand Drawn Images	127 (70.56%)	53 (29.44%)	180	Available
	Photographs	135 (75%)	45 (25%)	180	Available
	Local Made Toys	161 (89.44%)	19 (10.56)	180	Available
2	Media Animations:				
	Radio	81 (45%)	99 (55%)	180	Not Available
	Television	75 (41.67)	105 (58.33%)	180	Not Available
	Moving Pictures				
	Video Games	47 (26.11%	133 (73.89%)	180	Not Available
		71 (39.44%)	109 (60.56%)	180	Not Available
3	Computer Animation:				
	Digital Visual Effects	39 (21.67%)	141 (78.33%)	180	Not Available
	Moving Images Digitally	42 (23.33%)	138 (76.67%)	180	Not Available
	Computer Cartoons	68 (37.78%)	112 (62.22%)	180	Not Available

Source: *Researcher's Field Work 2025*

Table 1 showed that of 180 respondents, 87.78%, 70.56%, 75% and 89.44% agreed that hand drawn pictures, hand drawn images, photographs and local made toys are available respectively. While 12.22%, 29.44%, 25% and 19% selected they are not available. It can be concluded that indigenous animations are available at the pre-sursery school section in Osun State. The Table also revealed that of the total respondents, 55%, 58.33%, 73.89% and 60.56% said radio, television, moving pictures and video games are not available respectively. While 45%, 41.67%, 26.11% and 39.44% said they are available. It can be concluded that media animations are not available in pre-nursery school at the study area. Finally the Table showed that 78.33%, 76.67%, and 62.22%

said digital visual effects, moving images digitally and computer cartoons are not available respectively whil 21.67%, 23.33% and 37.78% agreed that they are available respectively. This implies that computer animations are not available.

Animation resources have no significance influence on learning outcomes of pre-nursery childrens in Osun State.

Table 2.
Influence of Animation Resources on Pre-Nursery School Children Learning Outcomes

Model Summary					ANOVA	
Model	R	R Square	Adjusted Square	R Std Estimate	F	Sig.
	.750[a]	.563	.500	2.357	9.000	.020[b]

a. Predictors: (Constant): Animations resources
b. Dependent Variable: Learning Outcome

Table 2 showed the influence of animation resources on pre-nursery children in Osun State. The Table indicated that the R-value in the test was .750, and the adjusted R-square was .563. This implies that animation resources have maximum of 75.0% and a minimum of 56.3% of the variance observed in learning outcome. The F-value derived in the testing of the model for significance was 9.000 at p = 0.20. since the p-value is less than 0.05, it can then be concluded that the model is statistically significant. This implies that animations have statistical significance influence on learning outcomes on pre-nursery nursery chidren in Osun State. Hence, the use of animation enhances children learning outcomes.

Discussion

Table 1 lists the indigenous animation resources available for use in Osun State's pre-nursery schools, including hand-drawn pictures, hand-drawn images, photographs, and locally made toys. This is line with Amoo (2023), who concluded that pre-nursery education requires indigenous animation, which ought to be supported. This might be as a result of Osun State's appreciation of cultural heritage and its use of indigenous animation to educate preservation. It may also seek to guarantee that old tales, myths, and cultural practices are passed down to future generations, or it may seek to help children see a future rooted in traditions and connect them to their past. Since indigenous animation can strengthen and preserve local languages by creating content in those languages, the state may also be addressing challenges to those languages. Since indigenous animations don't require energy, the cost and erratic electricity for media and computer animations may also be factors. This finding supports the findings of da Silva (2024), who discovered that Portuguese

elementary schools tended to use more traditional animations rather than technical ones, and George and Joseph (2024), who came to the conclusion that locally produced animation preserves cultural heritage.

Additionally, Table 1 showed that media and computer animations were not available in Osun State's pre-nursery institutions. This might be because they are more expensive to procure than native animations, which can be made locally for little or no money. Because media and computer animations depend on constantly evolving technology and require software, hardware, training, and occasionally expertise to run, they may deter investment. This finding is consistent with Asiedu (2022), who discovered that media animation was not available at Winneba High School; Akerele and Afolabi (2012), who discovered that Adeyemi College of Education lacked video animation for instruction; and Akinsoso (2018), who connected the lack of media animation to subpar performance in mathematics among senior secondary students in Nigeria. In contrast, Bulfin and North (2017) discovered that computer cartoons were accessible in the homes and schools of young Australians.

The results in Table 2 may be the result of young children's imaginations being stimulated by sights and sounds. Through natural brain connections, watching animations stimulates several senses, improving recognition and focusing attention. Because the brain analyzes visuals quickly, animation helps children perceive and understand complicated ideas, remember information, and simplify them. According to Etim et al. (2016), who discovered that instructional slow-motion animation improved Business Studies performance in Akwa Ibom State, and Chikendu (2018), who observed a significant influence on mathematics success and interest, academic performance improves with animated resources. It also supports the findings of Ojo (2022), who discovered that using animation in mathematics instruction improves student performance and excitement. On the other hand, Sabitu and Khalid (2024), found no discernible difference in the academic achievement of public primary students who received computer animation training.

CONCLUSION

Since animations can have both positive and negative effects on learning, children should be exposed to and directed when watching educational animated cartoons rather than violent ones. They have an impact on pre-nursery education by simplifying and enlivening difficult scientific concepts. Animation uses imagery to increase interest and engagement. Children learn concepts and values more rapidly when they are taught through educational

animation. When used properly, animation materials can significantly improve learning outcomes and increase the enjoyment and fulfillment of learning.

It is advised that pre-nursery programs incorporate indigenous animation to better meet the needs and goals of the young learners. Without simplifying the subject, indigenous animators must guarantee correctness, relevance, curricular alignment, and the encouragement of both verbal and numerical reasoning. To properly use animation and evaluate students' understanding in the classroom, pre-nursery teachers require training.

REFERENCES

Adjeketa, B. (2015). *Animation films and child development in Nigeria: A study of Sapele, Delta State* (Master's thesis, Delta State University, Abraka, Nigeria).

Akande, Y. J. (2023). Effect of educational cartoons on the learning outcomes of pre-nursery pupils in Ado-Ekiti, Ekiti State. *British Journal of Multidisciplinary and Advanced Studies: Education, Learning, Training & Development, 4*(5), 41–47. https://bjmas.org/index.php/bjmas/indexPublished

Akerele, A. J., & Afolabi, F. A. (2012). Effects of video on teaching library studies among undergraduates in Adeyemi College of Education, Ondo. *Library Philosophy and Practice (e-journals).* http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1754&context=libphilprac

Akinoso, O. (2018). Effects of the use of multimedia on students' performance in secondary school mathematics. *Global Media Journal, 16*, 1–7

Aksoy, G. (2012). The effects of animation technique on the 7th grade science and technology course. *Journal of Scientific Research, 3*(3), 304–308. http://dx.doi.org/10.4236/ce.2012

Alex, A. O. I., Ashoka, S. B., & Paul, R. U. (2022). *Effects of tutorial and animated media instructional strategies on achievement and retention of secondary school students in computer studies.* Shineeks Publishers.

Alyssa, M. (2025). What is animation – Definition, history and types of animation? https://www.studiobinder.com

Amoo, S. A. (2023). The contemporary trend in animation usage. *Multidisciplinary Journal of Research Development, 20*(2), 25–29.

Anekwe, C. E., & Opara, M. F. (2021). Effect of animation as instructional strategy on students' achievement and retention in chemical bonding. *Education and Sustainable Development, 1*(8), 41–50.

Asiedu, G. (2022). *Using computer animations to enhance senior high school students' academic achievements in rate of reactions* (Doctoral dissertation, University of Education, Winneba).

Ayotola, A., & Abiodun, S. (2010). Media animation and the academic achievement of Nigerian senior secondary school students in Biology. *Journal of the Research Center for Educational Technology, 6*(2), 148–161.

Bichi, S. (2009). *Effects of problem-solving strategy and enriched curriculum on students' achievement in evolution concepts among secondary school students* (Doctoral dissertation, Ahmadu Bello University, Zaria, Nigeria).

Bulfin, S., & North, S. (2017). Negotiating digital literacy practices across school and home: Case studies of young people in Australia. *Language and Education: An International Journal, 31*(3), 247–263.

Chernikova, O., Heitzmann, N., Stadler, M., Holzberger, D., Seidel, T., & Fischer, F. (2020). Simulation-based learning in higher education: A meta-analysis. *Review of Educational Research, 90*(4), 499–541.

Chikendu, R. E. (2018). *Effects of instructional computer animation on primary school students' achievement and interest in Mathematics in Awka Education Zone* (Doctoral dissertation, Nnamdi Azikiwe University, Awka, Nigeria).

Chinyere, C. U. (2019). Management of indigenous toys, modern toys and animation for early childhood education in Rivers State, Nigeria. https://open.library.okstate.edu/adect/chapter/management-of-indigenous-toys-modern-toys-and-animation-for-early-childhood-education-in-rivers-state-nigeria/

Dasdemir, I., & Doymuş, K. (2012). The effect of using animation on primary science and technology course students' academic achievement, retention of knowledge and scientific process skills. *Pegem Eğitim ve Öğretim Dergisi, 2*, 33–42. https://doi.org/10.14527/C2S3M4

da Silva, C., Pereira, F., & Amorim, J. P. (2024). The integration of indigenous knowledge in school: A systematic review. *Journal of Comparative and International Education, 54*(7), 1210–1228. https://doi.org/10.1080/03057925.2023.2184200

Dziedzic, K., Barszcz, M., Paśnikowska-Łukaszuk, M., & Jankowska, A. (2015). The role of computer animation in teaching technical subjects. *Advances in Science and Technology Research Journal, 9*(28), 134–138. https://doi.org/10.12913/22998624/60801

Eker, C., & Karadeniz, O. (2014). The effects of educational practices with cartoons on learning outcomes. *International Journal of Humanities and Social Sciences, 4*(14), 223–234.

Etim, P. J., Itighise, A. E., & Ema, I. B. (2016). Use of educational animation and academic performance of Business Studies students in Akwa Ibom State. *International Journal of Education, 8*(4), 21–28. https://www.researchgate.net/publication/311393974

Famaye, T., Akinyemi, A. L., & Aremu, A. (2020). Effects of computer animation on students' learning outcomes in four core subjects in Basic Education in Abuja, Nigeria. *African Journal of Educational Research, 22*(1), 70–84.

Federal Republic of Nigeria. (2014). *National policy on education* (4th ed.). NERDC Press.

George, E., & Joseph, S. T. (2024). Animating the past for future education: Perspective on technology and environmental learning in indigenous education of Uttar Pradesh. https://www.sieallahabad.org/hrt-admin/book/book_file/a822d0c19c09a46f5f7a8ac71a6bf680.pdf

Gupta, A., Kumar, R., & Sharma, S. (2021). Digital transformation in education: A case study of Uttar Pradesh. *Journal of Educational Technology, 45*(2), 123–135.

Haruna, M., & Lawal, U. S. (2025). Effectiveness of media animation on academic achievement in ecology among secondary school students in Municipal Education Zone, Kano State, Nigeria. *UMYU Scientifica, 4*(1), 336–343. https://doi.org/10.56919/usci.2541.033

Jain, R., & Verma, N. (2021). Indigenous games: Teaching cultural lessons in Uttar Pradesh. *Journal of Educational Policy, 35*(4), 123–135.

Jamal, S. N., Ibrahim, H. N., & Surif, J. B. (2019). Concept of cartoon in problem-based learning: A systematic literature review analysis. *Journal of Technology and Science Education, 9*(1), 77 – 92.

Lawan, M. (2024). *Effects of rhymes and digital storytelling on pupils' academic achievement and learning retention in literacy in Kumbotso Local Government Area of Kano State, Nigeria* (Doctoral dissertation, Kwara State University, Nigeria).

Musa, S., Ziatdinov, R., Sozcu, O., & Griffiths, C. (2015). Developing educational computer animation based on human personality types. *European Journal of Contemporary Education, 11*(1), 52–71. http://dx.doi.org/10.13187/ejced.2015.11.52

Obinna, P. P., Adanna, A. A., & Chinaza, G. P. (2021). Effects of animated-media instructional strategy on students' achievement in chemistry when compared to those taught using conventional method using their pretest and posttest mean scores. *IAA Journal of Education, 7*(1), 1–14.

Ojo, S. G. (2022). Effects of animated instructional packages on achievement and interest of primary school pupils in Mathematics. *Mathematics Teaching Research Journal, 4*(1), 99–113.

Omer, K., & Yuksel, G. (2020). The effects of three-dimensional cartoons on pre-school children's conceptual development in relation to spatial perception. *International Journal of Early Years Education, 29*(4), 420–437.

Oyero, O. S., & Oyesomi, K. O. (2014). Perceived influence of television cartoons on Nigerian children's social behaviour. *Estudos em Comunicação, 7*, 107–116.

Parlakyildiz, I., Seven, S., & Parlakyildiz, B. (2022). 5–6 years old children's perception of cartoon reality. *Malaysian Online Journal of Educational Technology, 10*(1), 16–31.

Parvin, F., & Islam, S. (2020). The impact of cartoon programs on children's physical health, intelligence, behaviour and activities. *European Journal of Physiotherapy and Rehabilitation Studies, 1*(1), 97 – 114.

Paulinus, J. E., & Iniobang, E. (2016). Use of educational animation and academic performance of business studies students in Akwa Ibom State. *International Journal of Education, 8*(4), 20–28. https://www.researchgate.net/publication/311393974

Sabitu, K. A., & Khalid, S. (2024). Effects of computer animation instructional package on primary school students' academic achievement in Oyo Metropolis, Oyo State, Nigeria. *European Journal of Contemporary Education and E-Learning, 2*(1), 150–161. https://doi.org/10.58224/ejceel

Sharma, A., & Suri, C. S. (2020). Effect of cartoon programs on language and behaviour of children. *PalArch's Journal of Archaeology of Egypt/Egyptology, 17*(6), 47 – 61.

Sahid, K. A., & Akeredolu-Ale, B. I. (2025). Effect of multimedia technology on academic performance of undergraduates in selected universities in Lagos State, Nigeria. *Journal of Media and Communication Studies, 17*(1), 1–10. https://academicjournals.org/journal/JMCS/article-full-text-pdf/5D2644073044

Ukala, C. C., & Agabi, O. G. (2017). Linking early childhood education with indigenous education using gamifications: The case of maintaining cultural value and identity. *Journal of Intellectual Education Review, 13*(1), 1–10.

Yagil, A. (2013). The role of cartoons in the education and social development of the child: The example of Caillou and Pepe. *International Periodical for the Language, Literature and History of Turkish, 8*(9), 707–719.